

Deliverable B: Need Identification and Problem Statement

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Introduction:

After meeting a representative of the company Growcer, we learned more about the need for a device that more effectively cleans algae off of their produce rafts. The current system of hand washing the boards using a scrub brush is both taxing on the user and extremely time-consuming. During the first client meeting, we were able to understand more of what the users needed this device to do and be. In this document, we will interpret the needs both brought to light by the client and benchmarked from similar products, prioritise them, and create a specific and encapsulating problem statement that will drive our design process.

User Benchmarks

A functionally similar product that comes to mind when thinking of a design solution for this project is an industrial dishwasher. Using reviews from a commercial kitchen equipment supplier website on different dishwashers, the following information was obtained. 5 star dishwashers met user expectations by saving on labour, having a high capacity, being reliable, compact, durable and fast. Reviews also included user needs such as being easy to use, quiet and meeting health regulations. One review liked the speed of the dishwasher but complained about it being slow on startup. However, the lowest star reviews complained about being unreliable and or breaking easily. Common issues included leaks, loose parts and failed motors. When trying to fix these issues many customers were not able to get it fixed under warranty and when attempting independent or 3rd party repairs they were unable to due to insufficient parts and information availability. There was one outlier where the user complained about the dishwasher being too big and mentioned they would not recommend it to other people without much space however they still gave a 5 star review stating that they did not need the space personally. By taking these reviews into consideration, we can create identified needs that are reflected in the raft cleaning product design for our client.

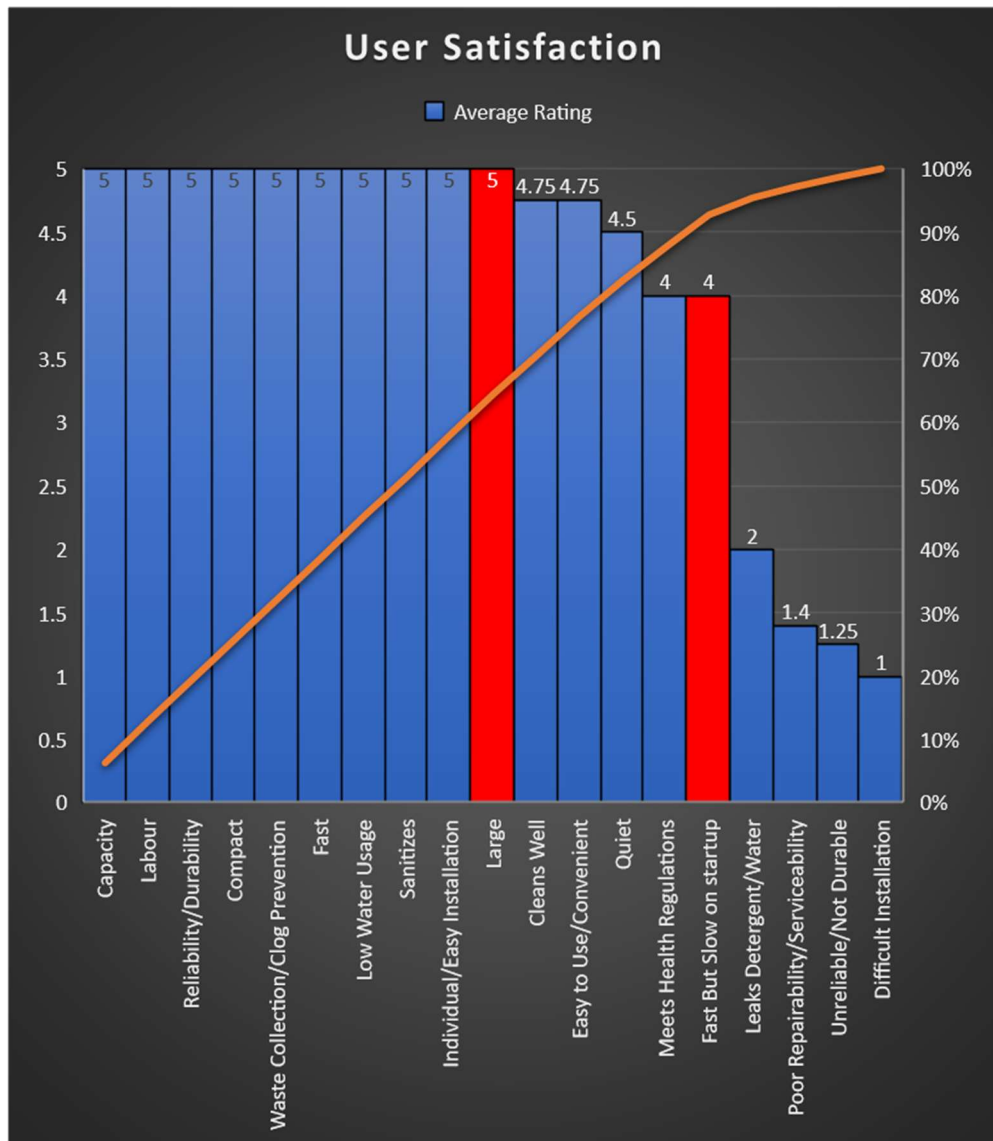


Figure 1: User Satisfaction on Dishwashers (chart created by Jacob Leeson, all data taken from reference A)

Interpreted Needs from Client Meeting and Benchmarked Product:

- Many users have limited technical ability, therefore the product needs to be simple, straightforward and easily repairable.
- The growing units are smaller in dimension, so the product is encouraged to take up minimal space.
- The client is strongly against the use of pesticides, so the product should be eco-friendly, food safe and sterile.
- The product is effective at cleaning all contours of the board.
- The system developed needs to be as compact as possible, meaning it maintains an organised space.
- The product needs to be safe for everyone to use.

- The air within the unit has a high humidity percentage, so a product that is highly corrosion resistant is beneficial.
- Multiple boards must be washed at a time, therefore the developed system is time-efficient
- The users would like to be able to perform other tasks, so limited to no supervision required
- The product is safe to leave unattended
- The client stated a wall-mounted solution, so the product should optimize the space within the unit.

Organize and Prioritize:

Problem Statement:

A need exists for an automated solution that effectively cleans algae off of produce rafts in an eco-friendly manner. The product takes up minimum space within the unit, and requires minimal technical knowledge and labour from users.

Conclusion:

Overall, the product will be built to best satisfy the client's needs, while also ensuring its effectiveness. The product is encouraged to be simple to use, while also allowing users to use their time for other tasks. It is ideal for the device to be able to clean the raft boards successfully to assure the safeguarding of the produce as well as the environment.

References

- A. **WebstaurantStore. (2022). 2022 reviews: The Best Commercial Dishwashers. WebstaurantStore. Retrieved October 2, 2022, from <https://www.webstaurantstore.com/reviews/commercial-dishwasher-reviews.html>**